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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,495	11/14/2000	Masayuki Kobayashi	FURUSAWA	5552

7590 03/17/2005

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EXAMINER	
EISEN, ALEXANDER	
ART UNIT	**PAPER NUMBER**
2674	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/700,495	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	Alexander Eisen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18-23* is/are allowed.

6)☒ Claim(s) *1,2 and 5-12* is/are rejected.

7)☒ Claim(s) *3,4 and 13-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

3. Claims 1, 5 and 18 are additionally objected to because of the following informalities:

- Claim 1 recites "an (luminance level) occurrence frequency counter"; in examiner's opinion it should be better read as --a luminance level occurrence frequency counter--. "liner" in line 7 should read --linear--.
- Claim 5 recites "pints" in line 16 – should be corrected to - - points - -.
- Claim 18 – "the appearance frequency counter" should apparently read - - an occurrence frequency counter - -, and "the correcting characteristic point 29" in lines 12-13 should be - - the correcting characteristic point control circuit (29) - -.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldstein, USP 6,504,954.

With respect to claim 1 Goldstein discloses an image quality correcting circuit (FIG. 1) comprising a luminance level occurrence frequency counter 14 (FIGS. 4-5) for counting the occurrence frequencies of the plural luminance levels h_N sampled from a video signal x(n,k) inputted to a video input signal terminal, a linear interpolator 12 for generating a correcting characteristic line by making the linear interpolation based on the output points of counted values of occurrence frequency counter (col. 4, line 60 - col. 5, line 50), and an image quality corrector 13 for correcting the inputted video signals according to the correcting characteristic points.

In regards to claim 5 Goldstein discloses an image quality correcting circuit comprising the occurrence frequency counter 14 for counting the occurrence frequencies of plural luminance levels sampled from the video signals x(n,k) inputted to the video signal input terminal, a correcting curve generator 12 for generating a new correcting curve based on the counted value output points of the occurrence frequency counter 14 and the set points $b_i(k)$ previously inserted among the counted value points, and the image quality correcting circuit 13.

As to claim 7, Goldstein further discloses that the correcting curve generator designed for generating new correcting curve by inserting the predetermined set of points (col. 5, ll. 32-56).

As to claims 9 and 11, Goldstein shows in FIG. 6 (see also col. 3, ll. 32-40) how counted value of the occurrence frequency is corrected by the variation controller 12 using linear interpolator or corrective curve generator, which sets new values within a period of several frames (see also discussion related to claims above).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein in view of Fujimura et al., (hereinafter Fujimura), USP 5,808,697.

With respect to claims 2, 6, 10 and 12 Goldstein discloses an image quality correcting circuit comprising all components as required by claims limitations except for a mean value computer for computing the mean value of the luminance levels of every plural picture elements sampled from the video signals inputted from the video terminal.

Fujimura teaches a video contrast enhancer including histogram processor, which employs a mean value computer (block average processor) 6 (FIGS. 1 and 6) for calculating a mean value of the luminance levels of every plural picture elements (pixels or pixel blocks) sampled from the video signals.

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to add to the image quality correction circuit of Goldstein the block average processor taught by Fujimura, because it would alleviate the problem of over-enhancing a contrast of video images (excessive contrast compression) by using adaptive histogram equalization (Fujimura, col. 1, ll. 16-45).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein in view of Matsuura et al., ("Matsuura"), US 6,853,747.

Goldsmith discloses that other than linear interpolation methods can be used in the image quality correction circuit (col. 5, lines 48-51), but does not explicitly suggest that it could be done using Bezier curve.

Matsuura teaches an image processing method, wherein either linear interpolation or Bezier curve generation is used to produce color characteristic (FIG. 5; col. 4, ll. 41-54).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made that "any other interpolation method" suggested by Goldstein for generation of the transfer function curve in the image quality correction circuit can be Bezier curve generating, taught by Matsuura, the choice of interpolation being simply one of the alternatives for image signal processing, which can be set forth at discretion of a designer.

Allowable Subject Matter

9. Claims 18-23 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art, either individually or in combination, teach or fairly suggest and image quality correcting circuit as claimed by independent claim 18, particularly a correcting characteristic point control circuit

for selectively outputting an upper limit value when counted value outputted from the occurrence frequency counter is greater than the upper limit value, while selectively outputting a lower limit value when the same is smaller than the lower limit value, and a correcting curve generator for generating a correcting curve according to the output of the correcting characteristic point control circuit.

Fujimura, discloses clipping histogram to an upper limit level Z (FIG. 13; col. 10, ll. 30-45), but fails to provide for a lower limit value, such that the correcting characteristic point control circuit selectively outputs a lower limit value when the count is smaller than the lower limit value.

10. Claims 3, 4 and 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: no prior art has been found that suggest a modification of or a combination with the cited prior art so as to satisfy the limitations of claims 3, 4 and 13-17; none of the prior art, either singly or in combination, teach or suggest an image quality correcting circuit comprising a plurality of discriminators for determining the occurrence frequencies, first counters for counting the occurrence frequencies of plural luminance levels for every predetermined level, a plurality of comparators for comparing the outputs from the first counters with reference values to clear the first counters by the outputs of comparisons, and a plurality of second counters for counting the outputs of the comparators; none of the prior art teach or suggest a variation controller comprising a difference detector, a constant multiplier, and adder and N-frame delayer, wherein

the detector outputs the difference between the counted value of the occurrence frequency counter and of the N-frame delayer, the difference is multiplied by the multiplier, the adder adds the output value of N-frame delayer to the output value of the constant multiplier, the N-frame delayer delays the sum obtained by the adder.

Goldstein discloses comparators 21, first counters 32, but does not teach second counters for counting the outputs from the comparators.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Azuma et al., USP 6,266,102 B1.

Lee, USP 6,219,447 B1.

Weiman et al., USP 4,979,136.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (703) 306-2988. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (703) 308-6725. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexander Eisen
Primary Examiner
Art Unit 2674

14 March 2005